

Claims

1. DNA expression construct for the expression of gene products of the Feline Leukosis Virus (FeLV) in cat cells, comprising a promoter sequence that is operable in Felidae, and at least one nucleotide sequence that is related to a wild-type nucleotide sequence of FeLV encoding an original structural protein ("gag") and /or membrane protein ("env"), where said nucleotide sequence of FeLV is mutated and comprises no open or hidden donor and /or acceptor sequences and encodes a protein which is highly homologous, but not identical, to the original structural protein ("gag") and /or the original membrane ("env") protein of FeLV, or a highly homologous but not identical but not identical part thereof.
2. DNA expression construct according to claim 1, encoding proteins that are highly homologous, but not identical, to the original structural protein ("gag") and /or the original membrane ("env") protein of FeLV, with a homology to the corresponding wild type of at least 98%.
3. DNA expression construct according to claim 1, containing the nucleotide sequence Seq.ID5, which has been mutated in the course of codon optimization, encoding the "gag" related structural protein.
4. DNA expression construct according to claim 1, containing the nucleotide sequence Seq.ID7, which has been mutated in the course of codon- and slice optimization, encoding the env-gp85 related membrane protein.
5. DNA expression construct according to claim 1, containing the nucleotide sequence Seq.ID8, which has been mutated in the course

of codon- and slice optimization, encoding the env-gp70 related membrane protein.

6. DNA expression construct according to one or several of the preceding claims, where the structural and /or membrane proteins are encoded completely or partially by the corresponding nucleotide sequences.
7. DNA expression construct according to at least one of the claims 1 to 5, where the expression construct is a plasmid.
8. DNA expression construct according to at least one of the claims 1 to 5, where the immunizing polynucleotide sequences are in the form of expression constructs consisting of covalently closed linear deoxyribonucleotide molecules comprising a linear double stranded region and where the single strands forming the double strand are linked by short single stranded loops consisting of deoxyribonucleotides, and where said double strand forming single strands only consist of encoding sequence under control of a promoter that is operable in the animal that is to be vaccinated, and a terminator sequence.
9. DNA expression construct according to at least one of the preceding claims, where the expression construct is covalently linked to one or more peptides.
10. DNA expression construct according to claim 8, where the peptide is composed of three to 30 amino acids, at least half of which are a member of the group consisting of arginine and lysine.

11. DNA expression construct according to claim 9, where the peptide comprises the sequence PKKKRKV (proline – lysine – lysine – lysine – arginine – lysine – valine).
12. Pharmaceutical composition, especially a vaccine, for the production of a preventive and /or therapeutic immunity in Felidae, especially the cat, containing a DNA expression construct according to one or several of the claims 1 to 11.
13. Protein with the amino acid sequence Seq.ID6, which is a protein highly homologous to the original structural protein ("gag") of the feline leukemia virus (FeLV).
14. Protein with the amino acid sequence Seq.ID9, which is a protein highly homologous to the original membrane protein gp85 ("env") of the feline leukemia virus (FeLV).
15. Protein with the amino acid sequence Seq.ID10, which is a protein highly homologous to the original membrane protein gp70 ("env") of the feline leukemia virus (FeLV).
16. Monoclonal antibody against a protein according to claim 13 to 15.
17. Polyclonal antibodies against a protein according to claim 13 to 15.
18. Kit for the diagnosis of infections in cats with the Feline Leukemia virus, comprising one or more antibodies according to claims 17 and 18.